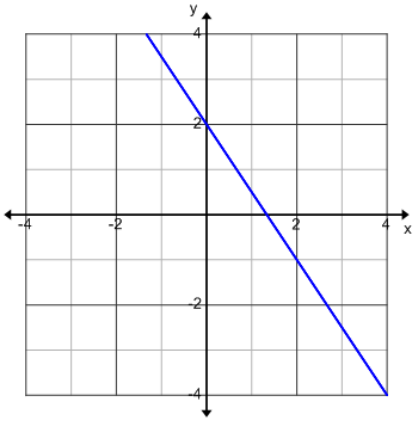
MPM 1DI - Unit 5
Linear Relations

Day 5
Finding Equation of a Line
(Given the Slope and One Point)

Recap : Finding equation of a line from the graph

Find the equation of the following line from the graph.



** Notice the point (2, - 1) is on the line

Example 1: Determine the equation of a line passing through the point (4,5) with a slope of -2.

x y

slope = -2

y intercept = 13

$y = mx + b$

$y = -2x + b$

$5 = -2(4) + b$

$5 = -8 + b$ (+8 +8)

$13 = b$

$y = -2x + 13$

Example 2: Determine the equation of a line that has a slope of $\frac{2}{5}$ and passes through the point (10,-4).

x y

slope = $\frac{2}{5}$

y intercept = ? -8

$y = mx + b$

$-4 = \frac{2}{5}(\frac{10}{1}) + b$

$-4 = \frac{20}{5} + b$

$-4 = 4 + b$ (-4 -4)

$-8 = b$

$y = \frac{2}{5}x - 8$

Example 3: Find the equation of a line..

a. parallel to $y = -\frac{1}{4}x - 6$, passing through (3,1)

$y = mx + b$

$1 = -\frac{1}{4}(3) + b$

$1 = -\frac{3}{4} + b$

$4 \cdot 1 = 4 \cdot -\frac{3}{4} + 4b$

$4 = -3 + 4b$

$\frac{7}{4} = \frac{4b}{4}$

$\frac{7}{4} = b$

slope $= -\frac{1}{4}$

y-intercept: $\frac{7}{4}$

$y = -\frac{1}{4}x + \frac{7}{4}$

b. perpendicular to $y = \frac{1}{3}x - 20$, and passing through (3,-7).

$y = mx + b$

$-7 = -3(3) + b$

$-7 = -9 + b$

$2 = b$

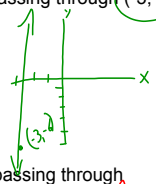
slope $= \frac{-3}{1} = -3$

y-intercept $= 2$

$y = -3x + 2$

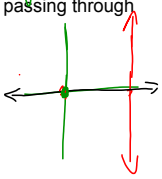
c. parallel to the *y-axis*, passing through (-3,-6)

$x = -3$



d. perpendicular to x = 7, passing through the origin. (0,0)

$y = 0$



Assigned work

Pg 335-337 # 1(ace), 2, 3, 5, 6, 8